Comment No.	Section	Page	Comment	Tierra Response to EPA Comment
1	General Comment	NA	The Crab/Clam QAPP indicated that water quality measurements were to be collected at each sampling station if surface water was present. Oversight field crew observed the collection of water quality measurements during eel pot deployment. Please include a discussion of water quality measurements in the Field Report and summarize findings.	Limited water quality measurements were collected. Water quality measurements were typically limited to one observation per day within the sampling area. Water quality was not measured at all gear deployment locations. Water quality was measured to get a snapshot of field conditions within the sampling area during each day. Water quality data will be included as an appendix to the report. Report to be revised as follows (page 4, first paragraph, after last sentence; page 7, after last sentence of fourth paragraph): "In situ water quality measurements were collected to provide a snapshot of field conditions within the sampling area and are provided in Appendix C." The subsequent appendices will be renamed, accordingly.

2	General Comment	NA	The Crab/Clam QAPP indicated that decontamination of field equipment was to be conducted. Please include a brief discussion of the types of decontamination procedures implemented in the Field Report.	Text to be added to the report as follows (page 3, second paragraph, after first sentence): "The spade was decontaminated between sampling locations with an ambient water rinse and, if necessary, brushing with ambient water." Page 4, first paragraph, after third sentence: "Crab traps were decontaminated between sampling locations with an ambient water rinse and, if necessary, brushing with ambient water."

3	General Comment	NA	Please provide all information on species abundance, meristic data (weight/length), sample sex (where collected), sampling date and location for all biota samples collected in electronic form to facilitate EPA's review and oversight of the Tierra risk assessment effort. Tierra previously indicated that consideration of the extensive historical fish survey data would be included in the evaluation of the fish community assessment endpoint. In fact, this was the rationale for not requiring an ichthyoplankton survey in the current program. The species abundance data for fish and shellfish collected under this program along with historical data will provide one measure of current status of the NBSA fish community along with long-term population trends. Please include catch per unit effort (CPUE) estimates for the more abundant fish species to facilitate comparison with previous Biological Sampling Program datasets in the revised Environmental Sample Collection Report.	• This information (species abundance, meristic data, etc.) was provided to EPA in the electronic data bases. • Tierra will provide catch per unit effort (CPUE) estimates for the more abundant fish species (e.g., greater than 1% of the catch).
4	Section 2.0	Page 2, last sentence in paragraph after collection permits	Please revise end of sentence to read "…from Louis Berger and Battelle, USEPA environmental contractors."	Revision to be completed as requested: "from Louis Berger and Battelle, USEPA environmental contractors."
5	Section 2.0	Page 2, fourth paragraph re: survey boats	Two boats were often on the water during field oversight and likely during other survey periods; please revise second sentence of paragraph as follows: "Survey boats were launched from a boat ramp at the Elizabeth City (NJ) Marina…"	Revision to be completed as requested: "Survey boats were launched from a boat ramp at the Elizabeth City (NJ) Marina…"

6	Section 2.0	Page 2, last paragraph	Please add a description that blue crab samples were processed in the field into the following tissue samples: edible muscle-only, hepatopancreas-only, and remaining carcass samples. Please note that clam tissue samples were processed in the field as well.	All tissue processing was conducted at the 80 Lister Ave facility which is noted in the report. Report to be edited as follows: "Samples were processed at the 80 Lister Avenue facility into the following tissue samples: edible muscle-only, hepatopancreas-only, and remaining carcass samples."
7	Section 2.0	Page 3, first paragraph under "Softshell Clam"	Please revise the following sentence to read: "Intertidal Locations 126 and 128 (both along the east shore of South Zone) were searched for softshell clam <u>for 30 minutes as per the QAPP</u>, but none were ~~present~~ <u>encountered</u>.	The requested revision will be made: "Intertidal Locations 126 and 128 (both along the east shore of South Zone) were searched for softshell clam <u>for 30 minutes as per the QAPP</u>, but none were ~~present~~ <u>encountered</u>."
8	Section 2.0	Page 3, second paragraph under "Softshell Clam"	Please revise the following sentence to read: "In addition, sediment associated with <u>each</u> ~~the~~ clam burrow~~s~~ was collected <u>to prepare a composite sediment sample</u>."	The requested revision will be made: "In addition, sediment associated with <u>each</u> ~~the~~ clam burrow~~s~~ was collected <u>to prepare a composite sediment sample</u>."
9	Section 2.0	Page 3, second paragraph under "Softshell Clam"	The first paragraph on this page mentions a QAPP modification; please provide a reference here to the revised protocol for sampling sediments associated with the soft-shell clam collection (Protocol Modification Form for SOP #9, Appendix F).	The following will be added to page 3, after the second sentence of the first paragraph: "(Protocol Modification Form for SOP #9, Appendix F)"

10	Section 2.0	Page 3, first paragraph under "Blue Crab"	The last sentence of this paragraph is confusing and not accurate. Because blue crab was targeted in both intertidal and subtidal areas, the phrase "blue crab collection locations" should be revised to "blue crab intertidal collection locations". Also, blue crab and softshell clams were not collected from the same 12 intertidal areas (*e.g.*, 135 – clam and 126 – intertidal crab) and the phrase "as prescribed and intended" is not accurate. The program as specified (*i.e.*, intended) is represented in Figure 1-1. All changes were made following concurrence with EPA and based on earnest attempts to collect samples from the QAPP-designated areas, but the sentence should be revised to correct inaccuracies.	• Revision to be completed as suggested in last paragraph and last sentence of page 3: "blue crab intertidal collection locations" • The text will be revised as follows (last sentence of last paragraph of page 3): "This allowed for consistency with the QAPP with sediment, softshell clam, and blue crab collected from 11 of the same intertidal locations. The exceptions were intertidal locations 126 (no softshell clam collected) and 135 (no blue crab collected). All changes were made following concurrence with EPA and based on earnest attempts to collect samples from the QAPP-designated areas."
11	Section 2.0	Page 4, first paragraph	Please note that blue crabs were inspected for gross anomalies and summarize the findings.	Revision to be completed as follows (page 4, second paragraph, before the second to last sentence): "During laboratory processing blue crab were inspected for gross anomalies but none were observed."

12	Section 2.0	Page 4, first paragraph	Please include a statement that three blue crab traps were deployed per station for a duration of 24 hours.	This statement is not entirely accurate. Revision to be completed as follows (page 4, first paragraph after first sentence): "Typically three crab traps were deployed per station for a duration of 24 hours. However, if additional blue crab were needed at a station after the first 24-hour deployment, the number of crab traps deployed was adjusted to achieve the required number of blue crab."

13	Section 2.0 and Section 3.0	Page 4, last paragraph under "Forms and Data Files" and Page 10, last paragraph under "Forms and Data Files"	Please include a bulleted list of Protocol Modifications associated with the blue crab, clam, and fish sampling.	Revision to be completed as follows (page 4, last paragraph under Forms and Data Files: • "Protocol Modification Form for SOP #9, Sediment Sample Location Depth • Protocol Modification Form for SOP #2, Crab/Clam/Sediment X and Y coordinates of sample location • Protocol Modification Form for SOP #6, Crab Trap decontamination procedure • Protocol Modification Form for QAPP Worksheet #14, tissue processing personal protective equipment • Protocol Modification Form for QAPP Worksheet #31, Internal Field Audit • Protocol Modification Form for SOP # 7 and #8, Timing of crab/clam tissue processing" Revision to be completed as follows (page 10, last paragraph under Forms and Data Files): • "Protocol Modification Form for SOP #4, Interval for retrieval of fish traps • Protocol Modification Form for Appendix D, Modification of sample processing form"

14	Section 3.0	NA	Section 2.0 (refer to page 2, last paragraph) lists the laboratories contracted for sediment and crab/clam tissue analyses. Please include similar text in Section 3.0 for fish tissue analyses, and please list all of the analyses conducted by Eurofins Lancaster Laboratory (or include a summary table).	The following sentence will be added to the sixth paragraph of page 7, after the sixth sentence: "These laboratories were Eurofins Frontier Global Sciences (mercury/methylmercury analyses), Eurofins Lancaster Laboratories Environmental (dioxins/furans, polychlorinated biphenyls, metals, semivolatiles, polycyclic aromatic hydrocarbons, lipids, and percent moisture analyses), TestAmerica Burlington (butyltins analyses), and Vista Analytical (pesticides analyses)."

15	Section 3.0	Page 7, first paragraph	Please discuss that gillnets were not found to be a preferable method of fishing because the nets were clogged by debris present in the water column and could not be effectively cleaned and re-set in a timely manner. A similar footnote should be added to the tables that summarize the number of fish caught per type of gear, since gillnets were not deployed for the same length of time as trawling and seining.	• Most of the adult white perch were collected with gillnets and this gear was the most effective method for collection of adult white perch. In some instances, gillnets were clogged with debris and had to be cleaned prior to redeploying. In the north zone we found that gillnets became easily clogged and subsequently, gillnets were not set in this zone. No change to report. • The length of time footnote is not necessary. The amount of time a type of gear was deployed varied by gear type. It is not possible to compare the length of time fishing a trawl net with the duration of a gillnet set or seine haul. These are three different types of gear with CPUE based on different effort (i.e., seine (#/haul), gillnet (#/gillnet set or hours fished), trawl (#/10-minute tow)).

16	Section 3.0	Page 7, fourth full paragraph	Please include a statement that fish sample collection also included documentation of any gross physical anomalies and summarize findings.	The report will be revised as follows (page 7, after last sentence of fourth full paragraph): "During laboratory processing fish were inspected for gross external anomalies, with few observed. A total of six individuals were observed with gross external anomalies with details provided in Appendix J."
17	Section 3.0	Page 7, last full paragraph	A. Please include a statement that fish filleting and liver extractions were conducted in the field facility, while tissue compositing occurred in the laboratory. B. Please summarize the main findings of the two pathology reports.	A. Page 7, last full paragraph after fourth sentence to be revised as follows: "Tissue processing conducted at the field facility included fish filleting and liver extractions." Page 7, last full paragraph after sixth sentence to be revised as follows: "All tissue compositing was conducted at the Eurofins Lancaster Laboratories." B. The findings are summarized in the fish data report which is a more appropriate location for this summary. No change will be made to the report.

18	Section 3.0 "Fish Collections 2015"	Page 9, Section 3.0 "Fish Collections 2015" and Table 1-1 (PDF page 40)	A. Please include a statement in Section 3.0, "Fish Collections 2015" and on Table 1-1 that the Striped bass size limit for anglers is 28 inches; however, USEPA approved the collection of Striped bass that were 18 inches or greater in length. The completed Striped bass collection effort retained four individual fish between the lengths of 18 and 28 inches. B. Please include a statement in Section 3.0, "Fish Collections 2015" and on Table 1-1 that the Summer flounder size limit for anglers is 18 inches; however, USEPA approved the collection of Summer flounder that were 15 inches or greater in length. Please summarize the range of sizes of Summer flounder retained for tissue analysis.	A. The following footnote and text will be added: Table 1-1: "Legal harvest length of striped bass from Newark Bay is 28 inches; however, USEPA approved the collection of striped bass that were 18 inches or greater in length." Page 9, after third sentence of paragraph 3: "The legal harvest length of striped bass from Newark Bay is 28 inches; however, USEPA approved the collection of striped bass that were 18 inches or greater in length. The completed striped bass collection effort retained four striped bass between 18 and 28 inches." B. The following footnote and text will be added: Table 1-1: "Legal harvest length of summer flounder in Newark Bay is 18 inches; however, USEPA approved the collection of summer flounder that were 15 inches or greater in length. Tissue samples of summer flounder

19	Section 3.0 "Fish Collections 2016"	Page 9, first paragraph under "Fish Collections 2016"	Please revise the following sentence to read: "White perch was the only target species collected in 2016 with a total of 236 individuals collected (Table 3 - 13) to replace fillet and liver tissue samples that were inadvertently destroyed during the 2015 tissue processing.	The requested revision will be made: "White perch was the only target species collected in 2016 with a total of 236 individuals collected (Table 3 - 13) to replace fillet and liver tissue samples that were inadvertently destroyed during the 2015 tissue processing."
20	General Figure Comment	NA	Please revise figure legends to be more specific. For example, the yellow circles in Figure 3-1 do not represent the Newark Bay North Zone; they actually represent blue crab sampling locations in the North Zone, and should be described as such in the legend.	The suggested revisions will be made to the applicable figures. For example, Figure 3-1 will have the following text added to the legend: "North - blue crab sampling location"
21	General Figure Comment	Figures 3-5, 3-6, 3-7, 3-8, and 3-9	Please add a note that 2014 sampling location information provided on Figure 3-5 (minnow trap), Figure 3-6 (seine), Figure 3-7 (eel pot), Figure 3-8 (trawl), and Figure 3-9 (gillnets) is identical to Figure 3-2 to avoid confusion.	The requested revisions will be made: Footnote to be added to Figures 3-5 through 3-9. "The locations provided for [*gear type*] are a subset of data represented on Figure 3-2."
22	General Figure Comment	Figures 3-10, 3-11, 3-12, 3-13, and 3-14	Please add notes that the 2015 locations provided on Figure 3-10 (trawl), Figure 3-11 (gillnets), Figure 3-12 (eel pot), Figure 3-13 (angling), and Figure 3-14 (trot line) are subsets of the data presented on Figure 3-3.	The requested revisions will be made: Footnote to be added to Figures 3-10 through 3-14. "The locations provided for [*gear type*] are a subset of data represented on Figure 3-3."

23	General Figure Comment	Figures 3-15 and 3-16	Please add notes that the 2016 locations provided on Figure 3-15 (trawl) and Figure 3-16 (gillnets) are subsets of the data presented on Figure 3-4.	The requested revisions will be made: Footnote to be added to Figures 3-15 and 3-16. "The locations provided for [*gear type*] are a subset of data represented on Figure 3-4."
24	Figures 2-1 and 2-2	PDF page 19 and 20	Please add legends to Figure 2-1 (red circles represent softshell clam and sediment sampling locations) and Figure 2-2 (blue circles represents blue crab sampling locations).	Legends will be added as follows: Figure 2-1 red circles: "softshell clam and sediment sampling locations" Figure 2-2 blue circles: "blue crab sampling locations"

25	Figure 2-1	PDF page 19	Please add a note on Figure 2-1 stating that symbols represent the approximate center of the sediment and clam tissue composite sampling area. A discussion should be added to Section 2.0 "Softshell Clam" that coordinates were recorded at the clam burrows following submittal of a field modification form.	• The following note will be added to Figure 2-1 as requested: "symbols represent the approximate center of the sediment and clam tissue composite sampling area" • Initially, coordinates were being recorded at each clam burrow to eliminate the need for a field judgement on the "…length and width of collection plot" per SOP 7. However, this was too time-consuming so the operation reverted to the more modest requirement in the SOP: "…location (total spatial area for collection, measured in length and width of collection plot), GPS coordinates for edges of collection plot…" Therefore, since the SOP was, at a minimum, being followed a Protocol Modification Form was not required.
26	Figure 2-2	PDF page 20	Please add a note on Figure 2-2 stating that multiple crab traps were deployed at each sampling location.	The requested note will be added to added to Figure 2-2: "multiple crab traps were deployed at each sampling location."

27	Figures 3-3 and 3-11	PDF pages 23 and 31	Figure 3-3 depicts gillnets as red lines whereas Figure 3-11 depicts gillnets as circles. Please use consistent symbols since the same information is presented on multiple maps.	The symbols on Figure 3-11 will be revised to be consistent with Figure 3-3.
28	Figure 3-18	PDF page 38	Figure 3-18 (lower right hand picture) shows the interorbital width with a ruler and two blue markers. It appears that the blue markers measure 46 mm, not 49 mm (as indicated in the call-out box). Please adjust position of blue markers or reported measurement as appropriate.	The blue markers on the figure will be adjusted to show the 49 mm interorbital width.
29	Table 1-1	PDF page 40	Table 1-1 appears to be missing some of the target fish species, such as hake (benthic demersal), as well as bluefish, weakfish, and American eel (sport fish). Please add missing target fish to Table 1-1.	Table 1-1 will be revised to include hake, bluefish, weakfish and American eel.
30	Table 2-1	PDF page 41	Footnote 'a' on Table 2-1 indicates that one of the clams at Location 129 was not included in the tissue composite. Please remove the 31 mm minimum clam from Table 2-1, revise the minimum clam length included in the tissue composite (38 mm according to Footnote 1 on text Section 2.0, "Softshell Clam," page 3), and correct statistics accordingly. Revise Footnote 'a' on Table 2-1 to note that one clam of 31 mm was collected but not incorporated into the tissue composite.	Table 2-1 will be revised by removing the 31mm clam from the data; the associated descriptive statistics will be revised. Footnote 'a' will be revised as follows: "one clam with shell length 31 mm was collected but not included in the tissue composite."
31	Table 2-1	PDF page 41	Add a footnote to Table 2-1 describing that clams collected at Location 129 were collected on two different dates (September 8 and September 25).	The requested footnote will be added to Table 2-1 as follows: "softshell clam were collected on separate dates (September 8 and 25)"

32	Table 2-2 and Appendix C	PDF page 42	(1) Please revise Table 2-2, Location 130 and Location 131, to report the minimum crab length included in the tissue composite. A footnote can be added that other crabs were collected but not used. Please update histograms in Appendix C accordingly. Please add a footnote to Table 2-2 stating that crabs collected at Location 130 and Location 131 were collected on two different dates (Location 130: September 18 and September 24, and Location 131: September 11 and September 17). (2) Please add a note that the statistics listed in the last row of Table 2-2 marked "Intertidal Areas" are for all the crabs (male and female). (3) Appendix C provides the width-frequency histograms for blue crabs. It appears that the histograms are for male and female blue crabs (total) per sampling location. In Table 2-2 (or a separate table), please include a summation of total crabs per sampling location to match Appendix C histograms.	[illegible] crab <114 mm. A footnote will be added to Table 2-2 as follows: "additional individuals were collected but not included in the tissue samples" Appendix C will be revised accordingly. The following footnote to be added to Table 2-2: "blue crab collected at Locations 130 and 131 were collected on separate dates (Location 130: September 18 and 24, Location 131: September 11 and 17)" 2. A footnote will be added to Table 2-2 as follows: "[4] Includes both male and female blue crab." 3. The total number of male and female blue crab is included in the last column of Table 2-2. No change to the report will be made.

2	Table 3-2	PDF page 44	Please verify that the Atlantic Croaker and Red Hake were collected; these fish could not be located in the 2016 "by-catch" database.	Confirmed that both species were collected in 2016. No changes will be made to the report. The fish catch summary "20160325 Fish Catch Summary Draft.xlsx" submitted to USEPA includes both Atlantic Croaker and Red Hake on the Bycatch tab.
34	Table 3-3 and Text Section 3.0 "Summary of Fish Collections"	PDF page 47 and text Section 3.0 "Summary of Fish Collections" page 8	The column labeled "Percent Composition" calculates a percentage based on the number of individual fish per species caught divided by the total number in the program. The column header is deceiving because the percentage does not represent a "composition of fish species" or the fish community in Newark Bay. The percentages are distorted by the smaller forage fish and crabs, where large quantities of individuals were required to meet the tissue mass requirements. Remove column or rename column to "Percent of Individual Fish Caught for Program." Similar revisions should be made to the text (Section 3.0 "Summary of Fish Collections," page 8). The following sentence is misleading "Mummichog, white perch, Atlantic silverside, and striped bass were the most abundant species collected" because large quantities of individuals were targeted to meet the tissue mass requirement. Please revise sentence accordingly.	• Table 3-3 column name to be revised as follows: "Percent Composition" will be changed to "Percent of Individual Fish Caught for Program" • The cited text will be revised to the following: "Mummichog, white perch, Atlantic silverside, and striped bass were the most common species collected for this program."

35	Tables 3-3, 3-7, and 3-8	PDF pages 47, 51, and 52	"Gobiidae" refers to the Family of fish. The common name is Naked Goby. Table 3-3, Table 3-7, and Table 3-8 list both the "gobiidae" and "naked goby" for the 2014 catch. Please review and revise as necessary.	The specimen was not able to be identified to species level, therefore, it was identified to family level only (Gobiidae). No change to report will be made.
36	Table 3-4	PDF page 48	Table 3-4 indicates that a summer flounder was caught using a crab trap. If correct, please include the sampling location of the crab trap on Figure 3-2.	Figure 3-2 will be revised to include the location of the crab trap that collected the summer flounder.
37	Table 3-5	PDF page 49	Please confirm the number of forage fish by zone. According to the forage fish compositing plan, there are 4 "North" Atlantic Menhaden, 113 "North" Atlantic Silverside, 356 "Central" Atlantic Silverside, and 147 "South" Atlantic Silverside.	The numbers of forage fish collected by zone, shown in Table 3-5, are correct.
38	Table 3-7	PDF page 51	Table 3-7 includes northern pipefish, striped anchovy, and striped mullet in the 2014 by-catch list. Please confirm that these fish were collected in 2014, and if so, please include a note describing that they were not included in the 2014 pathology examination.	These fish were collected in 2014. A footnote will be added to Table 3-7 as follows: "Northern pipefish, striped anchovy, and striped mullet not included in the 2014 pathology examination"
39	Table 3-10	PDF page 54	Please check calculations on Table 3-10. According to the 2015 fish database, the striped bass length ranged from 620-978 mm with an average length of 785.7 mm.	The table is correct. No change to report will be made. The error was in the fish database which had incorrect length of striped bass specimen ID NB03FSBS322-001. See below for detail about this individual. The correct length for this fish is 737 mm. NBS-AG-0430 NB03FSBS322-001 Bass, Striped (BS) 9374706 1120 The database will be corrected.

40	Table 3-15	PDF page 59	The length is missing for the one "Central" Windowpane Flounder caught in 2016. Please include value.	As noted in the footnote for Table 3-15, the length of this individual was not recorded. The fish flipped out of the boat during length measurement and weight was not determined. No change will be made to the report.
41	Appendix A, Photograph 30	PDF page 17	Please add a note that Photograph 30 represents the packaging and labeling of liver samples in 2016 following a protocol modification to pack liver and fillet samples in separate bags to avoid laboratory compositing errors.	The following will be added to Photograph 30: "represents the packaging and labeling of liver samples in 2016 following a protocol modification to pack liver and fillet samples in separate bags to avoid laboratory compositing errors"
42	Appendix C and Appendix G	General Comment	Please combine Appendix C and Appendix G since they both provide blue crab carapace histograms.	The appendices provide blue crab histograms for two separate collections (intertidal locations and bay zone) and should be separate. No change will be made to the report.
43	Appendix F	General Comment	Please make a note that Protocol Modification Forms are included in either the Clam-Crab Data Report (Appendix B) OR the Clam-Crab-Fish Field Report (Appendix F). To avoid confusion, it is recommended that all of the Protocol Modification Forms be presented in one location. Minor edit	The Protocol Modification Forms will be included in this report.